

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (currently amended) A hand held device for performing sound field hearing testing, said device comprising:

a housing configured to be held in the hand of a user;

[[a]] an audio transducer disposed on or within the housing, the transducer configured to produce for producing acoustic test stimuli to a test subject within ~~the~~ a direct sound field range of ~~said the~~ audio transducer[[,]];

[[b]] a contactless position sensor system [for remotely measuring] configured to remotely measure a said distance of said device with respect to the head or part thereof of said test subject [[,]]; and

[[c]] means for adjusting characteristics of said acoustic stimuli ~~in response responsive~~ to distance measurements performed by said the position sensor system, the adjustment means configured to produce a substantially constant acoustical perception at the subject's ear irrespective of device position or test mode.

2. (cancelled)

3. (currently amended) The device of claim 1, wherein the adjusting means is configured to adjust the acoustic stimuli responsive to ambient noise ~~said device is constructed and adapted to be hand held by said test subject.~~

4. (original) The device of claim 1, wherein said device is configured as a wrist watch.

5. (original) The device of claim 1, wherein said device is configured for operation by a test operator assisting said test subject.

6. (original) The device of claim 1, including means for performing said hearing evaluation in an unaided condition in which said test subject is not wearing a hearing aid.

7. (original) The device of claim 1, including means for performing said hearing evaluation in an aided condition in which said test subject is wearing a hearing aid.

8. (original) The device of claim 7, including means for performing said hearing evaluation in said aided condition to verify functionality of said hearing aid worn by said test subject.

9. (original) The device of claim 7, including means for performing said hearing evaluation in said aided condition to adjust at least one parameter of said hearing aid.

10. (original) The device of claim 1, further comprising means for delivering at least one of said acoustic test stimuli within the soft level listening range of normal hearing individuals.

11. (original) The device of claim 10, wherein said soft level listening range is between 20 and 40 dB HL.

12. (original) The device of claim 1, further comprising means for delivering at least one of said acoustic test stimuli within the comfortable level listening range of normal hearing individuals.

13. (original) The device of claim 12, wherein said comfortable level listening range is between 45 and 65 dB HL.

14. (original) The device of claim 1, wherein said contactless position sensor system comprises at least one of an optical transducer, acoustic transducer and ultrasonic transducer.

15. (canceled)

16. (previously amended) The device of claim 1, wherein said contactless position sensor system comprises means for determining if the device is within an operable range and orientation with respect to the head or part thereof of said test subject.

17. (original) The device of claim 1, wherein said contactless position sensor system comprises a transmitting transducer and a receiving transducer.

18. (previously amended) The device of claim 17, wherein said contactless position sensor system comprises means for computing the distance between the device and the head or said part thereof of said test subject based on the latency period between a transmitted signal emitted by said transmitting transducer and reflected signal received by said receiving transducer.

19. (original) The device of claim 17, wherein said transmitting transducer and receiving transducer are combined in a unitary bidirectional transducer.

20. (original) The device of claim 1, further comprising means to select from at least two types of acoustic test stimuli including speech, noise and tone types.

21. (original) The device of claim 1, further comprising means to select acoustic test stimuli in at least two frequency ranges.

22. (original) The device of claim 1, further comprising at least one switch for selection of at least one acoustic test stimulus.

23. (original) The device of claim 1, further comprising interface means for connecting a remote instrument to said device for remotely operating said device.

24. (original) The device of claim 23, wherein said remote instrument comprises a computer.

25. (original) The device of claim 23, wherein said interface means comprise an electrical cable.
26. (original) The device of claim 23, wherein said interface means comprise the Internet.
27. (previously amended) The device of claim 23, wherein said interface means comprise a wireless link.
28. (previously amended) The device of claim 23, further comprising response registration means for registering test responses by said test subject.
29. (canceled)
30. (previously amended) The device of claim 1, further comprising visual display means, including liquid crystal display (LCD) and light emitting diode (LED).
31. (original) The device of claim 1, further comprising a controller.
32. (original) The device of claim 1, further comprising memory for storage of data representative of acoustic test stimuli.
33. (original) The device of claim 1, further comprising a microphone.
34. (previously amended) The device of claim 33, wherein said microphone provides means for measuring ambient background noise.
35. (original) The device of claim 7, further comprising wireless remote control means for controlling or adjusting at least one parameter of said hearing aid worn by said test subject.
36. (original) The device of claim 35, wherein said wireless remote control means comprise a magnet.

37. (currently amended) A hand held device for performing sound field hearing evaluation in a contactless manner with respect to a test ear of a test subject, said device comprising:

a housing configured to be held in the hand of a user and direct sound and a position sensing signal at a user's head or a head of another test subject;

[[a))] an audio transducer for delivering acoustic test stimuli to said test subject holding said device within ~~the~~ a direct sound field range of said audio transducer ~~[[,]]~~ the transducer disposed on or within the housing;

[[b))] means for selecting delivery of said acoustic test stimuli through said audio transducer at two or more intensity levels for performing one or more supra-threshold hearing measurements~~[[,]]~~;

[[b))] means for selecting delivery of said acoustic test stimuli through said audio transducer in at least two frequency ranges for performing hearing evaluation in at least two frequency ranges~~[[,]]~~; and

[[d))] a wireless position sensor system for remotely measuring the distance of said device relative to the head or portion of the head of the test subject.

38. (original) The hand held device of claim 37, wherein said device is configured for operation by said test subject.

39. (original) The hand held device of claim 37, wherein said device is configured for operation by a test operator assisting said test subject

40. (original) The hand held device of claim 37, including means for performing said hearing evaluation in an unaided condition in which said test subject is not wearing a hearing aid.

41. (original) The hand held device of claim 37, including means for performing said hearing evaluation in an aided condition in which said test subject is wearing a hearing aid.

42. - 47. (canceled)

48. (previously amended) The hand held device of claim 37, further comprising a contactless position sensor system for measuring the position of said device with respect to the head or part thereof of said test subject.

49. (previously amended) The hand held device of claim 48, further including means for adjusting the characteristics of said acoustic test stimuli, in response to position measurements performed by said contactless position sensor system.

50. (previously amended) The hand held device of claim 48, wherein said contactless position sensor system comprises an ultrasonic transducer.

51. (canceled)

52. (canceled)

53. (original) The hand held device of claim 37, further comprising means to select from at least two types of said acoustic test stimuli including speech, noise and tone types.

54. (canceled)

55. (canceled)

56. (original) The hand held device of claim 37, further comprising interface means for connecting a remote instrument for remotely operating said hand held device.

57. (original) The hand held device of claim 56, wherein said remote instrument comprises a computer.

58. (original) The hand held device of claim 56, wherein said interface means comprise the Internet.

59. (canceled)

60. (canceled)

61. (previously amended) The hand held device of claim 56, further comprising response registration means for registering test responses by said test subject.

62. (canceled)

63. (previously amended) The hand held device of claim 37, further comprising visual display means, including an liquid crystal display (LCD) and light emitting diode (LED).

64. (canceled)

65. (canceled)

66. (original) The hand held device of claim 37, further comprising a microphone.

67. (previously amended) The hand held device of claim 66, wherein said microphone provides means for measuring ambient background noise.

68. (canceled)

69. (canceled)

70. (currently amended) A system for performing hearing evaluation of a test subject comprising:

a) a hand held device containing an audio transducer within, said hand held device being ~~positioned~~ positionable within ~~the~~ a direct sound field range of said audio transducer ~~and positioned with respect to a test ear of the subject while held in a hand of the subject so as to conduct a hearing test~~ in a contactless manner with respect to ~~[[a]]~~ the test ear of said test subject~~[[,]]~~;

b) an auxiliary instrument operably connected to said hand held device for remotely controlling the operation of said hand held device~~[[,]]~~;

c) means for selecting the delivery of acoustic test stimuli through said audio transducer at two or more intensity levels and at two or more frequency ranges~~[[,]]~~;

d) a contactless position sensor system for remotely measuring the distance of said device relative to the head or portion of the head of the test subject the sensor system configured to be operable in a packet signaling sensing mode to compensate for interference ~~[[,]]~~; and

e) means for adjusting said acoustic stimuli based on distance measured by said position sensor the adjusting means configured to produce substantially equal acoustical perceptions at the subject's ear irrespective of the measured distance.

71. (original) The system of claim 70, wherein said hand held device is independently operable as a hearing evaluator when detached from said auxiliary instrument.

72. (canceled)

73. (canceled)

74. (original) The system of claim 70, including means for performing said hearing evaluation in an unaided condition in which said test subject is not wearing a hearing aid.

75. (original) The system of claim 70, including means for performing said hearing evaluation in an aided condition in which said test subject is wearing a hearing aid.

76. - 80. (canceled)

81. (original) The system of claim 70, wherein said auxiliary instrument is a computer.

82. (original) The system of claim 70, including means for remotely connecting said auxiliary instrument to said hand held device through the Internet.

83. (canceled)

84. (currently amended) A method of evaluating a test subject's hearing with a hand held device containing a contactless position sensor system and an audio transducer, said method comprising ~~the steps of~~:

a) measuring the distance of said subject's head or part thereof relative to said device with said position sensor system when said device is oriented toward said subject's head or part thereof;

b) ~~determining any of the~~ adjusting a characteristic[[s]] of acoustic test stimuli ~~according to utilizing the distance measurement performed by said position sensor system to produce a substantially constant acoustical perception at the subject's ear irrespective of the measured distance;~~ and

c) delivering said acoustic test stimuli to said test subject while said device is oriented toward said subject's head or part thereof of interest.

85. (currently amended) The method of claim 84, including ~~the step of~~ orienting said audio transducer at approximately 0° incidence and within a distance range of 30-60cm with respect to the forehead of said test subject, while performing said step of delivering acoustic test stimuli.

86. (previously amended) The method of claim 84, including ~~the step of~~ orienting said audio transducer at approximately 0°-45° incidence range and within a distance

range of 2-10 cm with respect to a test ear of said test subject while performing said step of delivering acoustic test stimuli, for monaural hearing evaluations.

87. (original) The method of claim 84, including delivering said acoustic test stimuli in an unaided condition in which said test subject is not wearing a hearing aid.

88. (original) The method of claim 84, including delivering said acoustic test stimuli in an aided condition in which said test subject is wearing a hearing aid.

89. (original) The method of claim 88, including delivering said acoustic test stimuli in said aided condition to verify the functionality of said hearing aid.

90. (original) The method of claim 88, including delivering said acoustic test stimuli in said aided condition to adjust at least one parameter of said hearing aid.

91. (canceled)

92. (canceled)

93. (canceled)

94. (original) The method of claim 84, including connecting a remote instrument to said device via an interface to remotely control said device during said hearing evaluation.

95. (original) The method of claim 94, including connecting said remote instrument to said device via the Internet.

96. (original) The method of claim 94, wherein said remote instrument is a computer.

97. (original) The method of claim 94, wherein said remote instrument is an audiometer.

98. (currently amended) A method of hearing evaluation for an individual holding a hand held device containing an audio transducer for delivering acoustic test stimuli in a contactless manner and within ~~the~~ a direct sound field range of said audio transducer with respect to a test ear of said individual, said method comprising ~~the steps of:~~

- a) performing position sensing to remotely measure a distance of said individual relative to said device;
- b) calibrating said acoustic test stimuli based on the distance measured by said position sensing so as to produce a substantially constant acoustical perception at the test ear irrespective of the measured distance;
- c) delivering at least two levels of said acoustic test stimuli to said test ear of the individual [[,]]; and
- d) delivering said acoustic test stimuli in at least two frequency ranges.

99. (previously amended) The method of claim 98, including orienting said audio transducer at approximately 0° incidence and within a distance range of 30-60 cm with respect to the forehead of said individual.

100. (previously amended) The method of claim 98, including orienting said audio transducer at approximately 0°-45° incidence range and within a distance range of 2-10 cm with respect to said test ear, for monaural hearing evaluations.

101. (original) The method of claim 98, including performing said hearing evaluation in an unaided condition in which said individual is not wearing a hearing aid.

102. (original) The method of claim 98, including performing said hearing evaluation in an aided condition in which said individual is wearing a hearing aid.

103. - 105. (canceled)

106. (original) The method of claim 98, including connecting a remote instrument to said device via an interface to remotely control said device during said hearing evaluation.

107. (original) The method of claim 106, including connecting said remote instrument to said device via the Internet.

108. (original) The method of claim 106, wherein said remote instrument is a computer.

109. (canceled)